

## Addendum 2



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Application No. / Patent No.  
04 753 255.1 - 2104 / 1628766 /

Ref  
63211A

Date  
17.12.2008

Proprietor  
DOW GLOBAL TECHNOLOGIES INC.

### Decision rejecting the opposition (Art. 101(2) EPC)

The Opposition Division - at the oral proceedings dated 21.11.2008 - has decided:

**The opposition(s) against the European patent EP-B- 1628766 is/are rejected.**  
The reasons for the decision are enclosed.

### Possibility of appeal

This decision is open to appeal. Attention is drawn to the attached text of Articles 106 to 108 and Rules 97 to 98 EPC.

**Opposition Division:**

**Chairman:** Rumbo, Angel  
**2nd Examiner:** Klaes, Daphne  
**1st Examiner:** Gosselin, Daniel



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Enclosure(s): 6 page(s) reasons for the decision (Form 2916)  
Wording of Articles 106 - 108 and Rules 97 - 98 EPC (Form 2019)  
Minutes of oral proceedings

to EPO postal service: 11.12.08

1.

1. European patent specification EP 1 628 766 B1 was granted upon European application 04753255.1, which was filed as an international application PCT/US2004/016394 on 21.05.2004 and published on 09.12.2004 under the publication number WO 2004/105944 A1. The publication date of the grant is 24.01.2007. The application claimed a priority based on US application 472901P filed on 22.05.2003. The designated states are: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK and TR.

The proprietor of this European patent is Dow Global Technologies Inc. (US), who will be referred to in the decision as the "proprietor".

2. A notice of opposition was received at the European Patent Office on 18.10.2007 from BASF AG (DE), who will be referred to in the decision as "the opponent".

In the notice of opposition the opponent set forth as grounds of opposition lack of novelty and inventive step according to Article 100a EPC (Articles 54 and 56 EPC) against claims 18 to 20 as granted. The opponent requested the revocation of the patent in its entirety.

The opponent cited the following documents:

D1 = WO 97/26080 A1  
D2 = WO 01/44 347 A1

The opponent further requested oral proceedings.

3. With the letter of 02.04.2008, the proprietor discussed the arguments of the opponent. The proprietor requested as main request the rejection of the opposition and as auxiliary request the maintenance of the opposed patent in amended form on the basis of claims 1 to 17 as granted. He further requested oral proceedings.
4. The preliminary opinion of the opposition division dated 27.05.2008 was sent to the parties along with the summons to attend oral proceedings. The parties were informed that the opposition division considered that the opposed patent could not be maintained in the form as granted (main request), but could be maintained in amended form on the basis of the auxiliary request. The opposition division commented on the novelty and inventive step of claims 18 to 20 as granted, since

only these claims were opposed by the opponent.

5. Following the summons to attend oral proceedings, the parties reacted to the summons in the following letters.
  - 5a. With the letter of 21.08.2008, the opponent agreed to the lack of novelty objection of the product claim 19 as granted, but still maintained his lack of inventive step objections of his notice of opposition against claims 19 and 20.
  - 5b. With the letter of 18.09.2008, the proprietor filed first and second auxiliary requests, wherein the first request corresponded to claims 1 to 18 and 20 as granted, and the second request was identical with the auxiliary request filed with the letter of 02.04.2008. The applicant contested the view of the opposition division concerning the novelty in view of D1 of the catalyst according to claim 19 as granted.
  - 5c. With the letter of 10.11.2008, the proprietor filed replacement pages for the first auxiliary request. The amendment are purely formal. The reference to claim 19 in claim 20 of the patent as granted was replace by the wording of claim 19.
6. The oral proceedings were held on 21.11.2008. The discussion focussed on novelty and inventive step of the catalyst according to claim 19 as granted. The final decision was based on the main request. The requests comprise the following documents:

Main request:

Description and claims 1-20 as granted.

First auxiliary request:

Claims 1 to 19 as filed with fax dated 11.11.2008.

Second auxiliary request:

Claims 1 to 17 as filed with fax dated 18.09.2008.

The opposition was rejected according to Article 101(2) EPC.

1. The opposition is admissible under Rule 76 EPC. The grounds of opposition are Article 100a EPC (Articles 54 and 56 EPC) and Article 100b EPC (Article 83 EPC).
2. Admissibility of the first and second auxiliary request (Article 100c EPC).

The admissibility was not contested.

The first auxiliary request corresponds to claims 1 to 18 and 20 as granted. The wording of claim 19 was introduced into claim 20 as granted to form claim 19.

The second auxiliary request corresponds to claims 1 to 17 as granted, the patentability thereof was not contested in the notice of opposition.

3. Articles 100a and 54(1) to 54(3) EPC - Novelty of the subject-matter of the claim 18 to 20 of the main request.
- 3a. The opponent contested the novelty of the subject-matter of claim 19 as granted in view of D1.

D1 discloses a DMC (double metal cyanide) catalyst for the polymerization of epoxides.

The preferred DMC catalyst of D1 (page 6, line 25 to page 7, line 3) has a bimodal particle size distribution within the range of 0.1 to 10  $\mu\text{m}$  measured by light scattering in polyether polyol dispersions of the catalyst particles. D1 unambiguously identifies two groups of particles in the bimodal mixture.

The group of smaller particles is composed of particles having a size within the range of 100 to 500 nm (page 6, line 29 to page 7, line 1) and more preferably within the range of 150 to 400 nm (page 7, lines 2-3).

In example A and Table 1 (example 1) of D1, the bimodal catalyst comprises a minor component having particles with sizes comprised between 0.1 and 0.2  $\mu\text{m}$  and a major component having particles with sizes comprised between 0.9 and 4.0  $\mu\text{m}$ .

Although D1 is pointing to two different ranges for the particle sizes of the particles of the catalyst (bimodal distribution), D1 is silent on the form of the particle size

distribution. There is no information (written comment or graph) showing the exact form of the distribution, so that it is not possible to verify to which extend the particle sizes are concentrated within these two ranges, or if the distribution is almost diffuse around this two ranges.

It is further submitted that the catalyst of claim 19 is defined by its average particle size for the overall composition of 5 to 500 nm. This is different from the average size of the bimodal mixture of particles of the DMC catalyst disclosed in D1, which is in the micrometric range and clearly out of the definition of claim 19 as granted.

It is admitted that D1 identifies two groups of particles in the preferred catalyst compositions and that the physical means for separating particles were available at the filing date of the patent.

However, there is no hint that, after separation of the two portions of the preferred composition with bimodal size distribution according to D1, one of the groups of particles will inevitably have an average particle size within the range defined in claim 19 of the application.

There is also no hint in D1 to separate the two groups of particles.

The subject-matter of claim 19 is novel in view of D1.

- 3b. The catalyst of claim 19 being novel, the processes according to claims 18 and 20, which are characterized by the use of the new catalyst, are necessarily novel.
4. Articles 100a and 56 EPC - Inventive step of the subject-matter of the claims 18 to 20 of the main request.
- 4a. According to the patent ([0005]), the technical problem is the provision of a DMC catalyst that more efficiently catalyses the ethylene oxide capping reaction (EO-capping) and that efficiently polymerizes propylene oxide as well.

Independently of the technical problem defined in the patent, the provision of a new catalytic composition form could constitute the objective technical problem in view of D1 and D2.

- 4b. None of D1 and D2 suggests that this result could be achieved by using nanometric DMC catalyst particles.

As clearly indicated in D1, the powder DMC catalysts known in the art have large

particle sizes, typically in the range of 5 to 600  $\mu\text{m}$ , a major portion of the catalyst having particle sizes in excess to 100  $\mu\text{m}$  (page 7, lines 9-12).

The catalyst proposed in D1 suggests the use of smaller particles (page 11, lines 12-27 and page 7, lines 1-9 and table 6), however the average particle size is in the micrometric range.

D2 does not refer to the particle size of the DMC catalysts used in the reactions.

The teachings of D1 and D2, either individually or in combination, cannot lead to a process according to claims 18 or 20, in which the metal cyanide catalyst is in the form of particles having an average particle size within the range of 5 to 500 nm.

The opponent failed to show how the skilled person would be leaded to carry out the process of D1 with a catalyst having an average particle size within the range of 5 to 500 nm.

In view of the patent, the nanometric DMC catalyst particles having an average particle size within the restricted range defined in claim 19 of the patent as granted are apparently also appropriate for polymerizing propylene oxide, or polymerizing alkylene oxide to form poly(alkylene oxide). Meanwhile D1 suggests that the average particle size should be in the micrometric range, and D2 is silent with regard to the particle size of the catalyst.

The fact that nanometric DMC catalyst particles having an average particle size from 5 to 500 nm is appropriate for the reactions of claims 18 and 19 is a technical effect, which is not derivable from D1 and/or D2, and which is unexpected considering that the prior art teaches the skilled person to use DMC catalysts having micrometric average particle sizes (cf. D1).

The subject-matter of claims 18 to 20 is novel and involves an inventive step in view of D1 and D2, taken alone or in combination.

5. The subject-matter of claims 18 to 20 being novel and involving an inventive step, there is no need to consider the first and the auxiliary requests.
6. Consequently, the arguments of the opponent do not prejudice the maintenance of the patent as granted.

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Date 17.12.2008

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Application No.  
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The opposition is rejected according to Article 101(2) EPC.